

ION SOURCE AND METHODS FOR MALDI MASS SPECTROMETRY
ABSTRACT OF THE DISCLOSURE

5 Provided are MALDI ion sources, methods of forming ions and mass analyzer
systems. In various embodiments, provided are MALDI ion sources configured to
irradiate a sample on a sample surface with a pulse of laser energy at angle within 10
degrees or less of the surface normal, and a first ion optics system configured to extract
sample ions in a direction within 5 degrees or less of the surface normal. In various
embodiments, MALDI ion sources having substantially coaxial sample irradiation and
10 ion extraction are provided. In various embodiments, methods are provided, which
produce sample ions by MALDI and extract sample ions using an accelerating electrical
field to form an ion beam, such that, the angle of the trajectory at the exit from the
accelerating electrical field of sample ions substantially at the center of the ion beam is
substantially independent of sample ion mass.

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